**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re application of:

Andreas Bacher et al.

Group Art Unit: 1762

Examiner: Vickey Marie Nerangis

Serial No.: 10/618,936

Filed: July 14, 2003

For: Silane-Containing Polyvinyl Alcohol For Coating Slips

Attorney Docket No.: WAS 0595 PUS

# REQUEST FOR RECONSIDERATION

Mail Stop Appeal Brief - Patents
Commissioner for Patents
U.S. Patent & Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Appellants respectfully request the Board to reconsider their decision of October 7, 2010, for the reasons set forth below.

First, it is respectfully noted, referring to page 4 of the application, that there is no teaching or suggestion in *Schilling*, the principle reference, that his particular copolymers need any improvement in binding which *Maruyama* discloses and solves by incorporation of silane comonomers. Rather, the reverse is true. By incorporating isopropenyl acetate as a comonomer in the synthesis of *Schillings* polyvinyl alcohol precursor, unusual properties are obtained. As indicated by *Schilling*, his copolymers, as a result of incorporation of isopropenyl acetate moieties, "besides having excellent support properties for optical brighteners, have greater pigment binding capacity and high water-retention values. . ." Column 3, lines 7 – 10. There is every indication in *Schilling* that his copolymers provide sufficient binding already. *Maruyama* was first published in 1983, some three years prior to *Schillings* foreign priority filing date, yet *Schilling* completely failed to suggest the use of any silane comonomers. His binders clearly did not suffer from the deficiencies of the binders

*Maruyama* cites. There is no motivation to modify a *Schilling* polymer to cure an alleged deficiency not known to exist. In a rejection over a combination of references, there must be some objective teaching or suggestion, or knowledge generally known to the skilled artisan, to motivate that person to make the proposed combination. That is not the case here. The combination of references is based on piecemeal reconstruction of Appellants' claimed invention, not any motivation. *Schilling* does not indicate that his polymers have the problem *Maruyama* solves, and the polymers cited by *Maruyama* as having problems are not the same as those of *Schilling*. There is no motivation to combine these references, and the rejection of the claims should be reversed.

The Board states that *Maruyama* teaches that alkaline aqueous solution is preferable for stability of solution viscosity (Decision, page 4). *Maruyama* does state this, but also, at column 7, lines 15 – 19, indicates that the *Maruyama* copolymers most closely similar to the claimed copolymers, containing unsaturated monomers of *Maruyama's* formula I, are stable in viscosity both in ordinary solution as well as in alkaline media. "Stability" is always a relevant term. Appellants have shown that a *Maruyama* polymer is far more unstable than Appellants' copolymers.

The Board criticizes the scope of Appellants' showings presented in the Bacher Declaration. The range of silane comonomers is not just slightly narrowed with respect to the range considered in the prior Appeal, but is, respectfully <u>much</u> narrower, being only within the range 0.01 to 1%, some ten times narrower than the prior range. The comparative examples are squarely within this range, and involved two different silanes. Moreover, as Dr. Bacher indicates in paragraph 9 of his Declaration, that there is no scientific reason to believe that the same results would not be obtained throughout the claimed ranges, *i.e.* the range of concentration and the range of comonomers. The Office has not rebutted Dr. Bacher. In view of Dr. Bacher's testimony, the burden of going forward shifted to the Office. The Office has not met that burden. It has not refuted the afore-mentioned statement of Dr. Bacher, one highly experienced in this field, by providing <u>any</u> argument <u>at all</u>, of why Dr. Bacher is incorrect. The results are commensurate in scope with the much narrowed claims, and most certainly with respect to claims 5 and 22, which were separately argued.

The "Maruyama-type" copolymer (page 6 of the Decision) is virtually <u>identical</u> to the preferred *Maruyama* copolymer of Example 1 of *Maruyama*, and is the

commercial embodiment of *Maruyama*, sold by the *Maruyama* assignee. If there is any difference at all, it is that *Maruyama's* Example 1 states that his copolymer contains 0.5 (one significant digit) weight percent of vinyltrimethoxysilane-derived units, whereas the commercial POVAL® R-1130 contained 0.55 (two significant digits) weight percent. This is a direct comparison, and it is difficult to see on what basis it can be criticized.

Finally, the Board states:

> The Declarant also states that "[i]f Schilling, for example, were motivated to employ a silane-functional comonomer, there would be no reason apparent to Schilling, or more generally to anyone skilled in the art, to also employ isopropenyl acetate as a comonomer" (para. 7). However, the Declarant does not explain why one of ordinary skill in the art would not employ isopropenyl acetate as an optical brightener support and ensure minimized pigment shock while incorporating the silane-containing monomer to obtain the improved surface properties.

Perhaps Appellants' reasoning was not set forth with clarity. *Schilling* desires to decrease pigment shock, a phenomenon associated with polyvinylalcohol homopolymers. As a side effect, his copolymers also were more suitable for use with optical brighteners. However, there is nothing in the record to indicate that the *Maruyama* polymers do not also provide for sufficient optical brightening. *Schilling* compared his copolymers to conventional polyvinyl alcohol homopolymers, as also did *Maruyama.*

In particular, with regard to pigment shock, Dr. Bacher reiterates what is well known in the art, that silane-modified polyvinyl alcohols do not suffer from pigment shock (Backer Declaration, ¶7). *Schilling* solved the problem of pigment shock of polyvinyl alcohol homopolymers by introducing isopropenyl acetate comonomers. If silane comonomers are to be added to a polyvinyl alcohol polymer, why also add isopropenyl acetate? Adding the silane alone confers the necessary pigment shock resistance. One skilled in the art would not be motivated to add a third monomer (isopropenyl acetate) to solve a problem that addition of second monomer (silane) has already solved. One skilled in the art, in view of *Schilling* and *Maruyama*, if that person were trying to avoid pigment shock and include a silane monomer, would delete the isopropenyl acetate comonomer of *Schilling* because if would serve no purpose taught by the art, and instead would simply make the

product more expensive. In commercial reality, one does not manufacture a more complicated and more costly product when a product with lesser complexity and cost would have the same advantages.

However, Appellants unexpectedly discovered that including both isopropenyl acetate and silane comonomers in a polyvinylalcohol terpolymer did not reduce pigment shock – this was not a problem, but did render the terpolymer stable in solution, whereas the copolymers of *Maruyama* which have been commercially available for years, were known to have solution instability, as indicated by Dr. Bacher.

For all the above reasons, reconsideration is respectfully solicited.

Respectfully submitted,

**Andreas Bacher et al.**

By _____

William G. Conger
Reg. No. 31,209
Attorney/Agent for Appellant

Date: December 3, 2010

**BROOKS KUSHMAN P.C.**
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351